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ABSTRACT

Unauthorized copying and use of computer software, currently protected by the Copyright Act of 1976 (U.S.C. 117), is believed to occur in public schools and on university and college campuses by administrators, teachers, and students. The study described in this paper was undertaken to ascertain the nature, scope, and extent of unauthorized copying and use of computer software by Alabama public school students, teachers, and principals and to recommend appropriate and effective school policies. A total of 1,349 subjects participated in the study (427 computer science teachers, 433 principals, and a random sample of 489 non-computer science teachers). A five-part survey instrument was designed to elicit responses reflecting individuals' behaviors, opinions, and perceptions concerning this practice, and 23 hypotheses were tested. Major findings of the study were: (1) the majority of respondents found unauthorized copying of computer software by educators to be unacceptable; however, many indicated that they have made and will probably continue to make and use unauthorized copies; and (2) copyright policies in Alabama public schools appear to have little effect. Reasons stated include the high cost of computer software, computer software back-ups not being provided, being unable to preview software, and a shortage of available funds in the schools for the purchase of software packages. (LL)

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BEHAVIOR, OPINIONS, AND PERCEPTIONS OF ALABAMA PUBLIC SCHOOL TEACHERS AND PRINCIPALS REGARDING THE UNAUTHORIZED COPYING AND USE OF MICROCOMPUTER SOFTWARE

by

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Behavior, Opinions, and Perceptions of Alabama Public School Teachers and Principals Regarding the Unauthorized Copying and Use of Microcomputer Software

Introduction

In today's highly technological society, microcomputer use has become commonplace in most types of organizations including education (Bramble, Mason, & Berg, 1985). The widespread acceptance of the microcomputer as a useful tool in education has been encouraged by the availability of commercial, proprietary application software that satisfies many educational needs (Talab, 1984). The availability of software also has a large impact on the continuing use of microcomputers in education (Association of Data Processing Service Organizations [ADAPSO], 1984). Available commercial software prices range from a nominal amount for a simple drill and practice program for use in aiding instruction to thousands of dollars for a sophisticated integrated accounting system for a specialty industry. The development of the commercial software industry and the marketing of expensive programs have led to questions concerning the legal rights of both sellers and purchasers of software, and the problem of unauthorized copying and use of computer software.

Computer software is currently protected by the Copyright Act of 1976 (U.S.C. 117), but many questions remain unanswered regarding what is and is not allowed under the Copyright Act (Davis, 1985). According to Brooks (1985), when the 1976 amendments to the U.S. copyright laws were enacted, Congress asserted that computer programs are considered literary works and should be protected by the same copyright laws applicable to other literary works. These laws hold that the owner of a copyright is the only individual who has the right to reproduce or make copies of the work, to make derivative works (i.e., translations, new editions, modifications), to distribute copies of the work, to perform the work in public, or to display the work in public (Brooks, 1985; Wharton, 1986). Brooks (1984) interpreted Section 117 of the Copyright Act as authorizing the making of one copy of computer software for backup or archival purposes and for adaptations to programs that are necessary for the programs to run. Section 117 referred to owners of computer software, but some

computer software is leased or licensed, not owned. Frequently when purchasing computer software, the purchaser is not purchasing it to own it, but is leasing it under a licensing agreement.

Many software sellers or vendors include, with copies of their software, licensing agreements that detail the rights of the purchaser. These licensing agreements usually include information on whether purchaser copying of the software is authorized, how many and what types of copies are authorized, on how many machines the software may be used, and whether the software can be used on two or more machines at the same time. Although the Copyright Act allows an archive copy to be made, many licensing agreements forbid even a backup copy.

A statement informing the purchaser that he or she is agreeing to the terms of the license by opening the software package will appear somewhere on the package. Also visible through the package wrapping is the license agreement. This type of licensing is common in the computer software industry and is known as "shrink-wrap licensing". Whether or not the shrink-wrap licenses can be enforced is still being debated (Carlson, 1986).

Despite the fact that unauthorized copying of computer software, also known as software piracy, is illegal and is a violation of the Copyright Act, it was believed to be rampant in the microcomputer business (Brooks, 1985; Green, 1982). Green (1982) estimated the loss for software producers due to software theft at $2 billion in 1982. He stated, "Software manufacturers are well aware that their programs are being stolen . . . massively stolen" (p. 6). Lazzareschi (1990) reported, "All told, industry executives estimate annual revenue losses to domestic piracy at $1.5 billion, about half the $3.2 billion in U.S. retail PC software sales last year" (p. 3D). Some of the reasons given for unauthorized copying of computer software by those who do it were that software is too expensive and that software developers do not mind if copies are made because it gives them greater market penetration.

Douglass (1987) contended that one of the biggest problems in education today is the unauthorized copying of computer software. It is happening at all levels and by students, teachers, and administrators (Chin, 1983; Coons, 1986; Turner, 1987). Jordan (1985) wrote, "For whatever reason it is an admitted fact that teachers are making illegal copies of copyrighted computer software" (p. 2). Reasons given for computer software piracy in education included ignorance of the law, the high cost of computer software, lack of funds to purchase software, backup copies not being provided when software is purchased, and that no previewing of software is allowed before purchase (Jordan, 1985).

Although there are a multitude of application software programs available for educational use, many educators believe that much of the available software is not of good quality and that which is of good quality may be too expensive to purchase (Bork, 1984; Talab, 1984). Those educators who support this belief will often make unauthorized copies of programs that have been purchased by others and use these unauthorized copies for instruction or administration. Coons (1986) stated that the International Communications Industries Association (ICIA) reported that more than 100 school districts were investigated for software violations in 1985.

Licensing agreements are one method software publishers have used to protect their software (Carlson, 1986). Many software publishers also have resorted to technical means to prevent unauthorized copying (Kinzer, Sherwood, & Bransford, 1987). The most common technical means is copy protection (Slesnick, 1984). Copy-protection involves altering the program disk or the way in which information is stored on the disk. Copy-protected software cannot be copied using standard copy commands of the computer's operating system, or it can be copied but will not run unless the original is inserted into the computer first. The majority of educators disagreed with copy-protection and claimed it contributed to piracy by not allowing backups to be made and was not very effective (Kapor, 1984; Sacks, 1985; Talab, 1984). The issue of whether a software purchaser is committing

an illegal act by ignoring the licensing agreement or breaking the copy-protection to make a copy has not been decided (Brooks, 1984).

Slesnick (1984) believed that most individuals do not believe they are committing any wrong when making unauthorized copies of computer software and that this is the biggest obstacle to stopping unauthorized copying. Even though educators may believe the fact that they are educators and using the computer software for scholarly purposes allows them special privileges or exceptions regarding copyright laws, Bell (1983) disagreed. According to Bell, educators are not given any special exceptions to Section 107 of the Copyright Act (U.S.C. 117).

Many organizations and individuals have proposed solutions to the problems perceived by educators regarding computer software (i.e., cost, back-ups, previews, etc.) as a method of preventing unauthorized copying of computer software. The International Council for Computers in Education (ICCE) suggested a formation of regional or local centers for the demonstration of computer software by vendors and educators to allow educators to preview software, and that software vendors provide backup copies for archival purposes (Talab, 1984). The ICCE has also published several policy statements regarding unauthorized copying of computer software (International Council for Computers in Education [ICCE], 1985; International Council for Computers in Education [ICCE], 1986; International Council for Computers in Education [ICCE], 1987).

According to Harris (1984), when students make unauthorized copies of computer software at school, the school may be liable if it does not attempt to stop the students.

> Moreover, anyone who aids--either directly or indirectly--in the illegal copying of a copyrighted work may be considered a contributory infringer. That means that whenever students bring blank disks to class and make copies of expensive, copyrighted software, not only are they violating the law, but the school may also be liable if it does not take action to curb this conduct. (Harris, 1984, p. 19)

Harris wrote that some software companies have taken and will continue to take action against schools and businesses that allow unauthorized copying, either directly or indirectly.

> In fact, the Microcomputer Software Association, an organization of software developers and distributors, has declared "war on software pilferers and pirates." Amid much fanfare and publicity, the association recently announced the formation of a Software Protection Fund equipped with an initial budget of $500,000. The targets of this group include not only "professional pirates" but also "institutional copiers" such as "businesses and schools" and the "casual home and hobbyist copiers." (Harris, 1984, p. 19)

Another organization, the Software Publishers Association has provided an 800 telephone number and requested that individuals report any illegal copying of software of which they are aware (Harris, 1984).

An institution's liability for its employees (also students in the case of schools) making illegal copies of computer software can be lessened if it can be demonstrated that the institution attempts to prevent the copying. Gamble and Anderson (1989) provided nine steps to help educational administrators and their staffs abide by the computer software copyright laws. Harris (1984) suggested four steps to make unauthorized copying more difficult in schools.

Coons (1986) reported on two school districts that have formulated policies regarding unauthorized copying of computer software. Niemeyer (1986) provided a copy of a copyright policy adopted by the Board of Education of Carmel-Clay School District, Carmel, Indiana. Guidelines for the use of copyrighted materials by school staff members also were provided. The policy stated that all employees must adhere to the copyright laws and any other federal legislation or guidelines regarding copyrighted materials.

Coons (1986) offered several methods including site licensing, quantity discounts, lab packs, multiple loading, free software updates, and support for purchased software. Kapor (1984) contended that decreasing unauthorized copying of computer software will require a balance of technical, educational, legislative, and legal enforcement factors.

Purpose of the Study

Unauthorized copying and use of computer software is believed to occur in public schools and on university and college campuses by administrators, teachers, and students (Chin, 1983; Coons, 1986; Kinzer, Sherwood, & Bransford, 1986). If this practice was perceived to exist in the Alabama public school environment, data concerning its nature, scope, and extent would be valuable in formulating appropriate and effective school policy. A review of the literature failed to provide research concerning unauthorized copying of computer software by Alabama public school students, teachers, and principals. The nature, scope, and extent of the practice are not known. The purpose of this study was to ascertain the nature, scope, and extent of unauthorized copying and use of computer software by Alabama public school students, teachers, and principals by examining the behavior, opinions, and perceptions of public school teachers and principals concerning this practice.

Method

Sample

The populations examined in this study were Alabama public school principals employed in schools during the 1989-1990 academic year that housed 9th, 10th, 11th, or 12th grade students, Alabama public school teachers who taught computer science classes at the 9th, 10th, 11th, or 12th grade levels during the 1989-1990 academic year, and Alabama public school teachers who taught at the 9th, 10th, 11th, or 12th grade levels but did not teach computer science classes during the 1989-1990 academic year. The populations of 427 computer science teachers and 433 principals were used, and a random sample of 489 non-computer science teachers was selected by the Alabama State Department of Education using an Alabama public school personnel database for the academic year 1989-1990 managed by the Alabama State Department of Education. The total sample size used in this study was 1349 subjects.

Instrument

A survey instrument was developed to elicit responses from the sample of Alabama public school teachers and principals regarding their behavior, opinions, and perceptions of unauthorized copying and use of computer software by Alabama public school students, teachers, and principals. The survey instrument consisted of five sections.

Section I was comprised of Likert-type statements designed to determine the degree of agreement or disagreement with statements regarding opinions about unauthorized copying and use of computer software by educators and students. The statements were divided into two scales for analysis; one scale examined opinions about unauthorized copying of computer software by educators, and the other scale examined opinions about unauthorized copying of computer software by students.

Section II was comprised of Likert-type statements designed to determine the respondents' perceptions of how frequently educators and students make and use unauthorized copies of computer software. The statements were divided into two scales for analysis; one scale examined perceptions about unauthorized copying of computer software by educators, and the other scale examined perceptions about unauthorized copying of computer software by students.

Section III was comprised of statements examining respondents' past behavior regarding unauthorized copying and use of computer software. Section IV was comprised of statements examining respondents' probable future behavior regarding unauthorized copying and use of computer software. Section V was comprised of general information items designed to collect data concerning profession, computer availability, computer use, policies regarding unauthorized copying and use of computer software, and knowledge of copyright laws.

The survey instrument was examined by a panel of experts and a pilot study was conducted to determine any ambiguous, unclear, or non-applicable questions. Seventy-nine subjects from a high

school in an Alabama public school district were selected to participate in the pilot study; these subjects did not participate in the actual study.

Cronbach's (1970) coefficient alpha was calculated for the final survey using SAS (SAS Institute, Inc., 1985). Coefficient alpha was calculated to measure the internal consistency or reliability of each scale. For the opinion scale pertaining to educators, coefficient alpha was .94. For the opinion scale pertaining to students, coefficient alpha was .92. For the perception scale pertaining to educators, coefficient alpha was .96, and for the perception scale pertaining to students, coefficient alpha was .92.

Percentages were determined for each response for each item on the scales, and a Pearson-Product Moment Correlation Coefficient was computed for each item with its total scale score. Correlation coefficients for all items on all scales ranged from .66 to .88 and revealed moderate to high correlations. A total of 604 survey instruments were returned for a return rate of 45%. Of those survey instruments returned, 138 were blank; therefore, a total of 466 completed survey instruments was received for a 35% return rate.

Hypotheses, Data Analysis, and Results

The Likert scales concerning opinions and perceptions were treated as equal-appearing interval scales and were analyzed using a summated scale score and two-way factorial and one-way analysis of variance. The Likert-type questions concerning past and probable future behavior were examined using the Chi-Square Test of Independence.

Tests of Hypotheses using Analysis of Variance

Null hypotheses 1 through 18 were tested using two-way factorial and one-way analysis of variance. All tests were conducted using SAS (SAS Institute, Inc., 1985) and the significance level was set at .001. Null hypotheses 1 through 3 and 6 through 8 were tested hierarchically.

Opinions Regarding Unauthorized Copying and
Use of Computer Software by Educators

Hypothesis 1. There will be no statistically significant interaction between professional groups (computer science teachers, non-computer science teachers, and principals) and knowledge of copyright laws regarding opinions about unauthorized copying and use of computer software by educators.

No statistically significant interaction was found, so the main effects for professional groups and knowledge of copyright laws were examined in Null Hypotheses 2 and 3.

Hypothesis 2. There will be no statistically significant difference between computer science teachers, non-computer science teachers, and principals regarding opinions about unauthorized copying and use of computer software by educators.

No statistically significant difference was found between the groups. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by educators as unacceptable.

Hypothesis 3. There will be no statistically significant difference between respondents who have knowledge of copyright laws, respondents who do not have knowledge of copyright laws, and respondents who are not sure whether they have knowledge of copyright laws regarding opinions about unauthorized copying and use of computer software by educators.

A statistically significant difference in opinion was found between the groups. A follow-up analysis indicated that differences existed for all pairs of means. Respondents who have knowledge viewed unauthorized copying and use of computer software by educators as less acceptable than did respondents who do not have knowledge or respondents who are not sure whether they have knowledge. Respondents who are not sure whether they have knowledge viewed unauthorized copying and use of computer software as less acceptable than did respondents who do not have

knowledge. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by educators as unacceptable.

Hypothesis 4. There will be no statistically significant difference between respondents who use computers and respondents who do not use computers regarding opinions about unauthorized copying and use of computer software by educators.

No statistically significant difference was found between the groups. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by educators as unacceptable.

Hypothesis 5. There will be no statistically significant difference between respondents employed in schools or school districts that have a computer software copyright policy, respondents employed in schools or school districts that do not have a computer software copyright policy, and respondents who are not sure whether the school or school district in which they are employed has a computer software copyright policy regarding opinions about unauthorized copying and use of computer software by educators.

No statistically significant difference was found between the groups. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by educators as unacceptable.

Opinions Regarding Unauthorized Copying and Use of Computer Software by Students

Hypothesis 6. There will be no statistically significant interaction between professional groups (computer science teachers, non-computer science teachers, and principals) and knowledge of copyright laws regarding opinions about unauthorized copying and use of computer software by students.

No statistically significant interaction was found so the main effects for professional groups and knowledge of copyright laws were examined in Null Hypotheses 7 and 8.

Hypothesis 7. There will be no statistically significant difference between computer science teachers, non-computer science teachers, and principals regarding opinions about unauthorized copying and use of computer software by students.

No statistically significant difference was found between the groups. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by students as unacceptable.

Hypothesis 8. There will be no statistically significant difference between respondents who have knowledge of copyright laws, respondents who do not have knowledge of copyright laws, and respondents who are not sure whether they have knowledge of copyright laws regarding opinions about unauthorized copying and use of computer software by students.

A statistically significant difference in opinion was found between the groups. A follow-up analysis indicated that a significant difference existed between respondents who have knowledge of copyright laws and respondents who do not have knowledge of copyright laws. Respondents who have knowledge viewed unauthorized copying and use of computer software by students as less acceptable than did respondents who do not have knowledge or respondents who are not sure whether they have knowledge. Respondents who are not sure whether they have knowledge and respondents who do not have knowledge did not differ significantly. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by students as unacceptable.

Hypothesis 9. There will be no statistically significant difference between respondents who use computers and respondents who do not use computers regarding opinions about unauthorized copying and use of computer software by students.

No statistically significant difference was found between the groups. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by students as unacceptable.

Hypothesis 10. There will be no statistically significant difference between respondents employed in schools or school districts that have a computer software copyright policy, respondents employed in schools or school districts that do not have a computer software copyright policy, and respondents who are not sure whether the school or school district in which they are employed has a computer software copyright policy regarding opinions about unauthorized copying and use of computer software by students.

No statistically significant difference was found between the groups. Responses indicated that the majority of the respondents viewed unauthorized copying and use of computer software by students as unacceptable.

Perceptions Regarding Unauthorized Copying and Use of Computer Software by Educators

Hypothesis 11. There will be no statistically significant difference between computer science teachers, non-computer science teachers, and principals regarding perceptions about unauthorized copying and use of computer software by educators.

A statistically significant difference was found between the groups. A follow-up analysis showed that differences existed between all three pairs of means. Computer science teachers perceived educators as making and using unauthorized copies more frequently than did non-computer science teachers or principals. Principals perceived educators as making and using unauthorized copies less frequently than did either teacher group. Responses indicated that respondents from each group perceived educators as making and using unauthorized copies of computer software.

Hypothesis 12. There will be no statistically significant difference between respondents employed in schools with computers available for teacher use, respondents employed in schools without computers available for teacher use, and respondents who are not sure whether computers are available for teacher use in the school in which they are employed regarding perceptions about unauthorized copying and use of computer software by educators.

No statistically significant difference was found between the groups. Responses indicated that respondents from each group perceived educators as making and using unauthorized copies of computer software.

Hypothesis 13. There will be no statistically significant difference between respondents who use computers and respondents who do not use computers regarding perceptions about unauthorized copying and use of computer software by educators.

A significant difference was found between the groups. Respondents who use computers perceived educators as making and using unauthorized copies more frequently than did respondents who do not use computers. Responses indicated that respondents from each group perceived educators as making and using unauthorized copies of computer software.

Hypothesis 14. There will be no statistically significant difference between respondents employed in schools or school districts that have a computer software copyright policy, respondents employed in schools or school districts that do not have a computer software copyright policy, and respondents who are not sure whether the school or school district in which they are employed has a computer software copyright policy regarding perceptions about unauthorized copying and use of computer software by educators.

No statistically significant difference was found between the groups. Responses indicated that respondents from each group perceived educators as making and using unauthorized copies of computer software.

Perceptions Regarding Unauthorized Copying and Use of Computer Software by Students

Hypothesis 15. There will be no statistically significant difference between computer science teachers, non-computer science teachers, and principals regarding perceptions about unauthorized copying and use of computer software by students.

A statistically significant difference was found between the groups. A follow-up analysis indicated that differences existed between computer science teachers and non-computer science teachers and between computer science teachers and principals, but no significant difference was found between non-computer science teachers and principals. Computer science teachers perceived students as making and using unauthorized copies more frequently than did non-computer science teachers or principals. Responses indicated that respondents from each group perceived students as making and using unauthorized copies of computer software.

Hypothesis 16. There will be no statistically significant difference between respondents employed in schools with computers available for student use, respondents employed in schools without computers available for student use, and respondents who are not sure whether computers are available for student use in the school in which they are employed regarding perceptions about unauthorized copying and use of computer software by students.

No statistically significant difference was found between the groups. Responses indicated that respondents from each group perceived students as making and using unauthorized copies of computer software.

Hypothesis 17. There will be no statistically significant difference between respondents who use computers and respondents who do not use computers regarding perceptions about unauthorized copying and use of computer software by students.

No statistically significant difference was found between the groups. Responses indicated that respondents from each group perceived students as making and using unauthorized copies of computer software.

Hypothesis 18. There will be no statistically significant difference between respondents employed in schools or school districts that have a computer software copyright policy, respondents employed in schools or school districts that do not have a computer software copyright policy, and respondents who are not sure whether the school or school district in which they are employed has a computer software copyright policy regarding perceptions about unauthorized copying and use of computer software by students.

No statistically significant difference was found between the groups. Responses indicated that respondents from each group perceived students as making and using unauthorized copies of computer software.

Tests of Hypotheses using Chi-Square

Hypotheses 19 through 23 were tested using Chi-Square Test of Independence. SAS (SAS Institute, Inc., 1985) was used for all analyses of the hypotheses. For each hypothesis, eight chi-square tests were performed, one for each of the eight survey items relating to past behavior. The significance level for the chi-square tests was set at .001. If 26% of the cells had expected frequency values less than five, chi-square was deemed as an inappropriate test. Cramer's ϕ, which is used with larger than 2 x 2 tables and is free of dependence on table size (Welkowitz, Ewen, & Cramer,

1982), was used to test the strength of the relationship between any two variables found to have a statistically significant relationship.

Past Behavior Regarding Unauthorized Copying and Use of Computer Software

Hypothesis 19. There will be no statistically significant relationship between past behavior and membership in a professional group (computer science teachers, non-computer science teachers, and principals) regarding unauthorized copying and use of computer software.

A statistically significant relationship was found between membership in a professional group and past use of unauthorized copies of computer software for school classroom or administrative use, having allowed students to use unauthorized copies of computer software for school classroom use, and having made unauthorized copies of computer software for school classroom or school administrative use. Computer science teachers have used unauthorized copies of computer software for school classroom or administrative use, have allowed students to use unauthorized copies of computer software for school classroom use, and have made unauthorized copies of computer software for school classroom or administrative use more frequently than have non-computer science teachers or principals. Non-computer science teachers have used unauthorized copies of computer software for school classroom or administrative use, have allowed students to use unauthorized copies of computer software for school classroom use, and have made unauthorized copies of computer software for school classroom or administrative use more frequently than have principals.

Chi-square was not a valid test for membership in a professional group and past behavior items relating to past use of unauthorized copies of computer software for personal use, having allowed students to use unauthorized copies of computer software for personal use, having made unauthorized copies of computer software for personal use, having made unauthorized copies of computer software

with school computers, and having allowed students to make unauthorized copies of computer software with school computers.

Observed frequencies indicated that respondents from each group have used unauthorized copies of computer software for personal use, have allowed students to use unauthorized copies of computer software for personal use, have made unauthorized copies of computer software for personal use, and have allowed students to make unauthorized copies of computer software with school computers.

Probable Future Behavior Regarding Unauthorized Copying and Use of Computer Software

Hypothesis 20. There will be no statistically significant relationship between probable future behavior and membership in a professional group (computer science teachers, non-computer science teachers, and principals) regarding unauthorized copying and use of computer software.

A statistically significant relationship was found between membership in a professional group and probable future use of unauthorized copies of computer software for school classroom or administrative use, probable future use of unauthorized copies of computer software for personal use, probably allowing students to use unauthorized copies of computer software for school classroom use, probably making unauthorized copies of computer software for school classroom or administrative use, probably making unauthorized copies of computer software for personal use, and probably making unauthorized copies of computer software with school computers. A larger number of computer science teachers than non-computer science teachers and principals, and a larger number of non-computer science teachers than principals indicated they will probably use unauthorized copies of computer software for school classroom or administrative use, probably will use unauthorized copies of computer software for personal use, probably will allow students to use unauthorized copies of computer software for school classroom use, probably will make unauthorized copies of computer software for school classroom or administrative use, probably will make unauthorized copies of

computer software for personal use, and probably will make unauthorized copies of computer software with school computers.

No statistically significant relationship was found between membership in a professional group and probably allowing students to use unauthorized copies of computer software for personal use, and probably allowing students to make unauthorized copies of computer software with school computers. Observed frequencies indicated that respondents from each group probably will allow students to use unauthorized copies of computer software for personal use and probably will allow students to make unauthorized copies of computer software with school computers.

Hypothesis 21. There will be no statistically significant relationship between probable future behavior and whether or not a school or school district has a computer software copyright policy regarding unauthorized copying and use of computer software.

No statistically significant relationship was found for any of the items. Observed frequencies indicated that the respondents from each group probably will make, use, and allow students to make and use unauthorized copies of computer software.

Hypothesis 22. There will be no statistically significant relationship between probable future behavior and computer availability for teacher use regarding unauthorized copying and use of computer software.

Chi-square was not a valid test for any of the items. Observed frequencies indicated that the respondents from each group probably will use unauthorized copies of computer software for personal use, probably will make unauthorized copies of computer software for school classroom or administrative use, probably will make unauthorized copies of computer software for personal use, and probably will make unauthorized copies of computer software with school computers.

Hypothesis 23. There will be no statistically significant relationship between probable future behavior and whether or not respondents use computers regarding unauthorized copying and use of computer software.

A statistically significant relationship was found between whether or not respondents use computers and probable use of unauthorized copies of computer software for school classroom or administrative use, probable use of unauthorized copies of computer software for personal use, and probable making of unauthorized copies of computer software for personal use. A larger number of respondents who use computers indicated they probably will use unauthorized copies of computer software for school classroom or administrative use, probably will use unauthorized copies of computer software for personal use, and probably will make unauthorized copies of computer software for personal use than did respondents who do not use computers.

No statistically significant relationship was found between whether or not respondents use computers and their probably allowing students to use unauthorized copies of computer software for school classroom use, probably allowing students to use unauthorized copies of computer software for personal use, probably making unauthorized copies of computer software for school classroom or administrative use, probably making unauthorized copies of computer software with school computers, and probably allowing students to make unauthorized copies of computer software with school computers. Observed frequencies indicated that respondents from each group probably will allow students to use unauthorized copies of computer software for school classroom use, probably will allow students to use unauthorized copies of computer software for personal use, probably will make unauthorized copies of computer software for school classroom or administrative use, probably will make unauthorized copies of computer software with school computers, and probably will allow students to make unauthorized copies of computer software with school computers.

Conclusions and Discussion

The major finding of this study was that although the majority of respondents who participated found unauthorized copying of computer software by educators and students to be unacceptable, many indicated they have and probably will in the future make and use unauthorized copies. The majority of respondents disagreed that it was acceptable for educators to use unauthorized copies of computer software for classroom (72.1%) or administrative (77.4%) use, but 41.3% indicated they have and 25.1% that they probably will in the future use unauthorized copies of computer software for school classroom or administrative use. Many (16.3%) were undecided whether they probably will use unauthorized copies in the future.

The majority of respondents (74.2%) also disagreed that it was acceptable for educators to make unauthorized copies of computer software for classroom use, but 31.8% indicated they have and 17.6% indicated they probably will in the future make unauthorized copies. Many respondents (14.2%) were undecided whether they probably will make copies in the future. Only 68.2% of the respondents indicated they would not make unauthorized copies, although 74.2% found the practice unacceptable. This indicated that there are principals, computer science teachers, and non-computer science teachers in Alabama public schools who find the practice of making and using unauthorized copies of computer software unacceptable, but have and probably will in the future make and use unauthorized copies.

This finding supports research in the literature stating that unauthorized copying and use of computer software is occurring in the public schools by educators. Also supporting the literature were the respondents' perceptions that educators and students have made and used unauthorized copies of computer software.

Regarding use, it was perceived by 81.6% of the respondents that educators have used unauthorized copies of computer software for school classroom use and by 48.9% that educators have

used unauthorized copies for administrative use. Regarding copying, it was perceived by 73.3% of the respondents that educators have made unauthorized copies for school classroom use and by 49.3% that educators have made unauthorized copies for administrative use. Regarding students, it was perceived by 70.8% of the respondents that students have used and by 61% that students have made unauthorized copies of computer software for school classroom use.

A statistically significant difference was found between principals, computer science teachers, and non-computer science teachers regarding their perceptions of unauthorized copying and use of computer software by educators and students. Computer science teachers perceived students and educators as copying and using unauthorized copies of computer software more frequently than did either principals or non-computer science teachers. This is likely the result of computer science teachers having more access to computers and being more likely to be aware of any unauthorized copying or use.

When examining responses to past behavior items, a statistically significant relationship was found between principals, computer science teachers, and non-computer science teachers and past behavior. It was indicated that computer science teachers have used, have allowed students to use, and have made unauthorized copies of computer software more frequently than either principals or non-computer science teachers. This is probably the result of computer science teachers having greater access to and spending more time using computers. A statistically significant relationship also was found between principals, computer science teachers, and non-computer science teachers and probable future behavior. A larger number of computer science teachers indicated they would probably use, make, and allow students to use unauthorized copies of computer software. Again, this may result because computer science teachers have greater access to and spend more time using computers.

It was observed that when respondents who use computers and respondents who do not use computers were surveyed, respondents who use computers were more likely to make and use unauthorized copies of computer software. It could be surmised that this difference exists because individuals who do not use a computer would have no use for copies of computer software. There was also a difference in responses between those who have computers available for use and those who do not. Respondents who have computers available were more likely to make and use unauthorized copies of computer software. This difference could have resulted for similar reasons; individuals who do not have computers available for use would have no reason for having any software. The results of this study indicated that access to computers has an effect on whether or not individuals will make and use unauthorized copies of computer software.

No statistically significant relationship was found between probable future behavior and whether or not a computer software copyright policy was in existence in a respondent's school or school district. Responses indicated that 27.2% of the respondents were employed in schools or school districts with copyright policies and 21.5% were employed in schools or school districts that had no policies. It was of interest that 51.2% of the respondents were not sure whether the schools or school districts in which they were employed had a computer software copyright policy.

The fact that a school or school district did or did not have a copyright policy did not appear to affect whether or not the respondents would make or use unauthorized copies of computer software. The same percentage of respondents employed in schools or school districts with copyright policies (29%) and respondents employed in schools or school districts without copyright policies (29%) responded that they probably would use unauthorized copies of computer software for classroom or administrative use. When responding to whether they probably would make copies for classroom or administrative use, 21% of the respondents from both groups replied yes.

The literature supported the development of copyright policies for schools and school districts as one method of discouraging unauthorized copying of computer software. The results of this survey indicated that the presence of copyright policies in Alabama public schools appears to have little effect on whether individuals will make and use unauthorized copies of computer software.

Many of the respondents wrote comments on their surveys stating the reasons they make or use unauthorized copies of computer software. The reasons stated were many of the same reasons stated in the literature and included the cost of computer software, computer software back-ups not being provided, not being allowed to preview software, and the school not having available funds.

Based on the results of this study and the search of the literature it is recommended that further studies be conducted. Respondents who have knowledge of copyright laws indicated they found unauthorized copying and use of computer software less acceptable than respondents who do not have knowledge. The extent to which copyright laws are being taught to Alabama educators and students should be explored. Computer software copyright policies currently in the schools should be examined to determine the contents of the policies, if they are being enforced, and whether having a policy can make a difference in whether educators and students make and use unauthorized copies of computer software. The reasons Alabama public educators and students make and use unauthorized copies of computer software should be explored and possible solutions examined. A study should be conducted to determine if students are making and using unauthorized copies of computer software as has been stated in the literature and as perceived by the respondents in this study.

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